

REMARKS

Claims 1, 4, 5, 7-10, 12-21, and 23-25 were previously pending. Claim 1 has been amended in accordance with the requirements of U.S. patent practice. New claims 26 and 27 have been added, and claims 13 and 18 have been canceled. Thus, upon entry of the present amendment, claims 1, 4, 5, 7-10, 12, 14-17, 19-21, and 23-27 are pending in the application.

Claim 1 has been amended to recite that “the coated thermoplastic support sheet (T/B) or the cut-to-size pieces thereof are preformed prior to step (II),” as supported by previous claim 18, now canceled. Claim 1 has been further amended to recite that “the protective sheet (S) is applied to the coating (B) after step (I) and before the coated thermoplastic support sheet (T/B) is preformed,” as supported by previous claim 13, now canceled, as well as the application as filed, on page 14, lines 9-14.

New independent claim 26 contains all the limitations of independent claim 1 and further requires that the protective sheet has a thickness of from 10 to 100 μm and that the protective sheet (S) is constructed from a plurality of layers and comprises a core layer (KNS) comprising at least one homopolymer or copolymer selected from the group consisting of films made of polyethylene, polypropylene, ethylene copolymers, propylene copolymers, and ethylene-propylene copolymers, wherein at least one further layer is selected from the group consisting of adhesive layers (KS) and antiblocking layers (AS). Support for these additional limitations can be found in dependent claims 10 and 12.

New independent claim 27 contains all the limitations of independent claim 26 and further requires that the protective sheet has a thickness of from 30 to 70 μm and comprises a core layer comprising polypropylene, an adhesive layer, and a thermoplastic antiblocking layer. Support can be found in previous claim 10, as well as the application as filed on page 16, line 20, to page 17, line 7.

Amendments to, cancellation of, and additions to, the claims, as set forth above, are made in order to streamline prosecution in this case by limiting examination and argument to certain claimed embodiments that presently are considered to be of immediate commercial significance. Amendment or cancellation of the claims is not in any manner intended to, and should not be construed to, waive Applicants' right in the future to seek such unamended or

cancelled subject matter, or similar matter (whether in equivalent, broader, or narrower form) in the present application, and any continuation, divisional, continuation-in-part, RCE, or any other application claiming priority to or through the present application, nor in any manner to indicate an intention, expressed or implied, to surrender any equivalent to the claims as pending after such amendments or cancellations.

The Office Action, on page 2, states that the previous amendment to the specification introduced new matter. In particular, the Office Action states that the identification of GH-X 527 as a polypropylene film on the basis of a statement in U.S. Pub. 2009/001189 is disallowed, because it was filed after the instant application.

In order to obviate this objection, Applicants have canceled the alleged new matter by the above amendment to the specification.

1. Rejection of claims 1-22 under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for GH-X 527, does not reasonably provide enablement for the protective sheet and the ranges claimed for the physical characteristics in Claim 1.

The Office Action states that the specification does not reasonably provide enablement for the protective sheet and the ranges claimed for the physical characteristics in claim 1. (07/10/2010 Office Action page 3, last paragraph.) In particular, the Office Action states:

The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims. Applicant's specification fails to enable one having the ordinary skill in the art to make and use the protective sheet(s) claimed in claims 1-22...

It is examiner's position that the claims as written are not enabled by the accompanying disclosure. As applicant has only given one example of said protective sheet as stated in Table 1. The only example is identified only by the trademark name of GHX-527 and there is no disclosure drawn to the ingredients of this material.

...In claim 1, applicant recites a feature of the invention that is critical to the invention performing its intended operation. This feature is the use of a protective

sheet when molding a multi-functional polymer molding...Applicant has claimed this protective sheet by claiming only the key properties of the resultant protective sheet. The process for making such a protective sheet is missing from applicant's disclosure. One of ordinary skill in the art at the time of the invention would have to run a wide spectrum of experiments in order to create a protective sheet with the 5 key properties claimed by applicant.

(07/10/2010 Office Action page 3, last paragraph, to page 5, para. 1.)

Applicants greatly appreciate the detailed basis of rejection, but must respectfully disagree in regard to the invention of independent claims 1, 26, and 27. Applicants respectfully submit that the specification is enabling and that the arguments in the rejection are incorrect both on the facts and as a matter of law.

Contrary to the arguments in the Office Action, Applicants are not claiming a product on the basis of a trademark. There are no trademarks in the claims, and the mention of a trademarked product in an example in the specification actually reflects Applicants' attention to enablement and the best mode requirement. In other words, Applicants respectfully submit that Applicants' identification, in an example, of the source of a material used in the presently claimed process does not constitute non-enablement.

Furthermore, the Office Action is clearly mistaken in stating that the material used for the film is described only in terms of properties. The Office Action incorrectly states, "As applicant has only claimed a product by its physical characteristics..."

07/10/2010 Office Action page 6, paragraph 2. This assertion is clearly incorrect. The Office Action further contends "The inventor's only disclosure that would lead one to make and use the invention is that Bishcoff and Klein sells the product under the trademark GH-X 527." 07/10/2010 Office Action at page 6, paragraph 2. Of course, this is also quite untrue. The entire specification is a disclosure. Applicants, in the Example, have merely shown, that the inventors, in fact, did carry out the specified invention using a specifically selected protective sheet from a commercial supplier. It must be kept in mind, however, that the claimed invention involves much more than the selected protective sheet, but various components and various process steps.

The Office Action states that, even if a polyolefin were used in the support sheet, "This disclosure would invite undue experimentation because it is well known that there

are endless numbers of materials which are polyolefin based with infinite combinations of physical characteristics.” Applicants respectfully submit, however, that this is a *non sequitur*. Applicants are, in fact, claiming a specific range, in essence, of two standard properties, not infinite combinations.

In fact, the material is described in detail in terms of composition. Furthermore, the material used in the example is one and the same as the preferred material described in the specification. Whether or not the Office agrees with that fact is irrelevant to enablement. Applicants have clearly averred that they are one and the same, as a factual matter, and provided evidence in the form of a statement in a published document. The Office has no grounds for disbelieving Applicant's statements in that regard. Thus, the fact that GH-X 527 is not specified as corresponding to the preferred film in the specification is irrelevant to enablement. Whether or not GH-X 527 was specified as comprising polypropylene would have no effect on enabling one of ordinary skill in the art to reproduce Applicants' invention, since polypropylene was clearly described in the specification as the most preferred material.

The Office Action is also incorrect in asserting that a wide spectrum of experiments would be required “in order to create a protective sheet with the 5 key properties claimed by applicant.” 7/10/2010 Office Action at page 5, lines 6-7. In fact, as Applicants have already pointed out in a previous amendment, only three properties are required by the claim, which are storage modulus, elongation to break, and transmittance. Furthermore, it would be incredible to believe that one of ordinary skill could not obtain a sheet that transmits visible light and UV radiation. Hence, the remaining requirements are storage modulus and elongation to break. One of ordinary skill in the art would appreciate that it would not be especially difficult to obtain a sheet with these two specified properties. More significantly, Applicants submit that such kinds of properties are typically made in purchasing such films from various companies specializing in their production and sale, as described in the present specification. Hence, the Office Action is incorrect in arguing that films with a specified storage modulus and elongation to break could not be obtained by one of ordinary skill in the art. Furthermore, one of ordinary skill in the art would appreciate that these two properties can be tested and confirmed by standard dynamic analysis, by means of widely used

standard instrumentation. Finally, one of ordinary skill would know how to vary such properties. Typically, this can be accomplished, for example, by varying molecular weight and/or other conventional variables in preparing such films, as discussed further below.

Furthermore, Applicants respectfully submit that the claimed ranges for storage modulus and elongation to break are not indefinite or unduly broad. In fact, as suggested by the Examiner in a previous rejection, Applicants have previously amended the claims to recite that the protective sheet has a storage modulus E' of from 10^7 to 10^8 Pa in the temperature range from room temperature to 100°C , and an elongation at break of from 400 to 900% at 23°C . Thus, the ranges in the claims reasonably, in fact quite closely, match the properties of the representative material used in the example.

Furthermore, Applicants strongly contend that the fact that only one example of the invention is provided in the application, or that the composition of the protective film in this example is not clearly described, is not inconsistent with the enablement requirement. The kind of protective sheets described in the application as a whole, with particular attention to the preferred embodiments, are available from a variety of commercial sources and can be readily obtained once the properties and polymer composition have been selected for use in the specified process. Other commercial sources for such protective sheets, among others, are illustrated, for example, by the assignees of EP 1767341 A1 to Grefenstein et al. and WO 2008/005110 to McGee et al., which prior art references also illustrate the common practice of claiming polymer films in terms of key properties. One of ordinary skill in the art would appreciate that, given all the details provided in the present application with respect to the specific protective sheet, including properties, structure, and composition, one of ordinary skill in the art could obtain such a protective sheet meeting the specified requirements from a variety of commercial suppliers.

Thus, claim 1, in defining the protective sheet in the claimed process, makes no mention of a trademark, but does define the sheet in terms of specified properties readily obtainable by one of ordinary skill in the art and recites that the protective sheet comprises a film made of polyethylene, polypropylene, ethylene copolymers, propylene copolymers, and ethylene-propylene copolymers. This is not a particularly wide range of

materials as apparently imagined in the Office Action. Still furthermore, claim 23 (as well as new claims 26 and 27) recites that the protective sheet is constructed from a plurality of layers comprising a core layer (KNS) of the selected polymer and, in addition, an adhesive layer (KS) and/or antiblocking layer (AS).

It is also important to note that Applicants are not claiming a method of making a protective sheet, but rather the selection, from the broad genus of all possible or conceivable protective sheets for whatever use in whatever process, of a species of a specific type of protective sheet for use in a specific type of process for making a specific type of product, as discussed more fully below with respect to the obviousness rejection. It is quite common, in patent applications, where the invention involves a combination of different materials, to assume that a material can be commercially obtained, especially when they are composed of a well known polymer such as polypropylene. Applicants have provided at least one commercial source of such a material and accompanying generic information, including composition and key properties, such that the protective sheet is well defined and obtainable from a variety of commercial suppliers. As stated above, the additional trademark identification is consistent, not inconsistent, with Applicants' disclosure requirements. The fact that trademarks are liable to mean different things, as stated in the Office Action, at page 6, lines 1-3, does not mean trademarks cannot be used in an application, but that they should not be used in claims. Applicants can concede that the Example in the specification could have been better drafted in terms of a clear disclosure, but such imperfection does not remotely rise to the level of non-enablement, especially since the Office Action provides no evidence of non-enablement, merely an assertion that is inconsistent with the many patents in the art involving standard kinds of properties.

Reconsideration and removal of this rejection of these claims are respectfully requested in view of the foregoing amendments and remarks.

2. Rejection of claims 1, 4-5, 7-10, 12-21, and 23-25 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The Office Action states, in particular, that claim 1 has been amended to include the claim limitation "protective sheet (S) comprises a layer." The Office Action asserts

that the claim is indefinite because the properties are specific to the sheet and it is “unclear as to what layer in the protective sheet requires that properties.”

Applicants greatly appreciate the detailed basis of rejection but must respectfully disagree. It seems that this rejection is confusedly asserting that the properties are both specific to the sheet (as a whole) and specific to each layer in the sheet. In fact, the properties apply only to the sheet as a whole, not necessarily to individual layers. One of ordinary skill in the art would appreciate, however, that in a multilayer sheet, a core layer, could dominate the properties of the sheet as a whole.

Reconsideration and removal of this rejection of these claims are respectfully requested.

3. Rejection of claims 1, 4-5, 7-8, and 12-21 under 35 U.S.C. 103(a) as being unpatentable over Koniger et al. (WIPO International Publication WO 00/63015, made of record by the applicant, whose English equivalent is Koniger et al., USP No. 6,777,089 B1), hereafter “Koniger,” in view of APA (“Applicant’s Admitted Prior Art”) in further view of Schoepfel.

Applicants greatly appreciate the detailed basis of rejection but must respectfully disagree in regard to the invention of independent claims 1, 26, and 27.

First, contrary to the assertion in the Office Action, simply because Applicants can agree that WO 00/63015 is prior art, Applicants do not admit that steps 1-4 are clearly anticipated by WO 00/63015. In fact, Applicant has strenuously argued the contrary. Apparently, rather than relying merely on Koniger as the basis of the rejection, the Office Action somehow wishes to convert Applicants’ statement that Koniger is prior art into an admission (APA) that Koniger anticipates steps 1-4. This is an incorrect assertion, for reasons explained below.

The Office Action states:

In claim 1, Koniger teaches a process for producing polymer moldings (M/T/B) with functional surfaces (O) for which (I) a coating (B) is produced on a thermoplastic support sheet (T) by a process comprising (1.1) coating one surface (T.1) of (T) with at least one pigmented coating material (B.1). (See column 4, line 45, to column 5, line 45, disclosing the addition of a coloring layer (pigment) to the substrate (support sheet) and (1.2) coating the resulting film (B.1) with at least one chemically curable coating material (B.2). (See column 4, line 45, to column 5, line 45, disclosing the addition of an outer layer which is radiation

curable. Also see column 1, lines 50-67, disclosing the addition of an outer layer that is radiation curable) to give the film (B.2) following its curing a transparent coating (B.2). (See Column 5, lines 32-35, disclosing that the outer layer is transparent.), (II) inserting the resulting coated thermoplastic support sheet (I/B) into an open mold, (III) closing the mold and contacting the uncoated side (T.2) of the coated thermoplastic support sheet (I/B) with a liquid polymeric material (M) to shape the coated thermoplastic support sheet (T/B) and join it firmly to the polymeric material (M), and causing the polymeric material (M) to solidify. (See claim 11 and column 6, lines 61-67, disclosing the injection-back molding of a polymer composition to the substrate sheet), and (IV) removing from the mold (Inherently the sheet is removed from the mold after the addition of the polymer back molding), the resulting coated polymer molding (M/T/B), whose coating (B) is uncured, part-cured or full-cured; where (V) fully curing in or after at least one of step (I) step (III) or step (IV) the uncured or part-cured coating (B) or after step (IV) the full-cured coating (B) is after cured; the coating (B) being covered at least temporarily with a protective sheet (S). (See column 5, lines 33-38, disclosing covering the sheet with a protective layer. This protective sheet allows the curing process to be delayed.)

(07/10/2010 Office Action page 8, last paragraph, to page 9, para. 1.)

Applicants respectfully submit that, while the Office Action has noted some limited similarities between Koniger and the present invention, the rejection is clearly deficient in misinterpreting both Koniger and the present invention and failing to appreciate the significant differences between Koniger and the present invention. In fact, the claimed invention represents an improvement over Koniger.

To clarify the present invention, Applicants, in claim 1, have specified that the protective sheet (S) is applied to the coating (B) after step (I) and before the coated thermoplastic support sheet (T/B) is preformed. The Office Action points to column 5, lines 33-38 for disclosing use of a protective sheet. However, Koniger does not state when the protective sheet is applied. Furthermore, Koniger doesn't state when the protective sheet is removed, for example, before or after performing, for example. Hence, the Office Action is merely speculating on how Koniger uses a protective sheet in the process, which protective sheet isn't even used in Koniger's example.

Hence, Koniger simply cannot teach the present invention, except based on hindsight using Applicants' own disclosure. Koniger clearly fails to disclose use of the specified process and the specified film material. More specifically, Koniger fails to disclose the combination of the specified process and the specified protective sheet to obtain a high gloss film for use in an automobile or the like. The result of the claimed

process, as a whole, is a high gloss material capable of meeting the stringent requirements for automobile moldings.

The Office Action is merely presuming teachings based on Applicants' own disclosure and ignoring the critical differences in the prior art. This is impermissible under 35 U.S.C. §103. Claim limitations cannot be overlooked, nor the invention as a whole treated only in part.

In a previous Office Action, the Examiner conceded that Koniger does not teach fully or partly curing the film B2 after Step (1) but before Step (2) nor the use of a protective sheet S1 having the essential storage modulus and elongation to break properties. The Office cannot overlook those critical deficiencies with unsupported assertions that Applicant has admitted the deficiencies are in the prior art, apparently based on the logic that the Applicant admits that the Examiner's current interpretation of Koniger and the Applicants' discussion of Koniger is correct. It is respectfully submitted that Applicants have argued otherwise and has certainly not admitted what the Office Action asserts. With due respect, the alleged admission appears to be a hindsight misinterpretation of a statement in Applicants' application.

Specifically, the Office Action states "APA teaches wherein after the end of step 1 the coating B is cured." In fact, the present claim states that the film B.2 is fully or partly cured with UV radiation after step (I). Furthermore, the Office Action has misquoted the application which actually states, "in step (I) and/or after the end of step (I) and/or in step (III) and/or in step (IV), the uncured or part-cured coating (B) is fully cured..." Thus, there are various combinations of possibilities, none of which specify curing after step (I) but before deformation and none of which specify film B.2 as compared to coating B, which comprises both B.1 and B.2, each of which can be cured independently of each other, which indeed is essentially what occurs in preferred embodiment of the present invention.

Furthermore, the Office Action asserts that one having ordinary skill in the art "would be motivated to partly cure the T/B sheet in order to lock in the components as this film is usually stored a long time." While such speculation might suggest the use of any film that protects the T/B sheet, the present invention is directed to a particular protective sheet which does more than that. Applicants submit that, if storage protection

were the only purpose, the Office Action has, in effect conceded that the Applicants use of a particular sheet having the specified properties in the specified process for providing improved high gloss is both unexpected and patentable. Such improvement is irrespective of any storage.

The Office Action asserts, on the one hand, that there “are endless numbers of materials which are polyolefin based with infinite combinations of physical characteristics,” and, on the other hand, that “the claimed protective sheet can be selected from the group of films...the protective sheets for inventive use are conventional...Essentially, applicant has disclosed the use of a well known conventional plastic as a protective sheet.” 07/10/2010 Office Action at page 11, para. 2.

It should be noted that the alleged grounds for enablement are quite inconsistent with the grounds for unobviousness in the use of the selected protective sheet. The selection of a specified material to obtain improved results is, as admitted by the Examiner, one of a “myriad” of possible films and properties.

Furthermore, the Office Action has misconstrued the claimed invention by viewing the invention as claiming a protective sheet. See the Office Action, at page 11, lines 4-5, referring to the “claimed protective sheet.” The present application is claiming a process for making a molding in which the protective sheet is used to make a multilayered article having high gloss for use in automobiles or similar transport vehicles. Thus, the relationship between the process and materials used in the properties are important.

In fact, Applicants have repeatedly pointed out that Koniger, in fact, does not disclose Applicants' process. Koniger teaches: “The radiation curing of the outer layer takes place in this case preferably after the thermoforming operation and with particular preference after the injection backmolding of the film.” Similarly in the Examples, in col. 8, Koniger cures the radiation curable film after thermoforming, as indicated in col. 8, lines 28-32, and again, in col. 8, lines 57-60.

In contrast, present claim 1 recites that “the film (B.2) is fully or partly cured with UV radiation after step (I), but before step (II), following deformation to adapt the coated thermoplastic support sheet (T/B) to the contour of the mold, wherein the resulting full-cured coating (B.2) is optionally after-cured after step (IV) or the resulting part-cured

coating (B.2) is fully cured after step (IV), and the resulting polymer molding (M/T/B) is optionally thermally after-treated to raise the crosslink density of (B.2),” as supported by the original specification on page 13, lines 21-29.

Importantly, the Office Action fails to explain how Koniger teaches a protective sheet (S) that has (s.1) a storage modulus E' of 10^7 to 10^8 Pa in the temperature range from room temperature to 100°C , and (s.2) an elongation at break from 400-900% at 23°C longitudinally and transversely to the preferential direction produced by means of directed production processes in the production of (S). Furthermore, the Office Action fails to explain how Koniger teaches that the coating (B)-facing side (S.1) of the protective sheet (S) has (s.1.1) a hardness <0.06 GPa at 23°C and (s.1.2) a roughness corresponding to an R_a from 50 micrometers² <30 nm as determined by means of atomic force microscopy (AFM). Since these are critical limitation in the claim, the failure to address them in the Office Action does not meet the requirements of 35 USC 103.

More specifically, claim 23 and claim 22 require that one surface of the sheet has (s.1.1) a hardness <0.02 GPa at 23°C , and (s.1.2) a roughness corresponding to an R_a over a sampling area of $50\text{ }\mu\text{m}^2$ of <25 nm as determined by means of atomic force microscopy (AFM).

The Office Action further asserts:

...Additionally, Schoepfel further teaches that the GH-X series releasable protective sheet are known in the art to be used in application in which a protective sheet can be applied and removed at a subsequent time period. (See paragraph 0132 and 0078.)

It would have been obvious to one having the ordinary skill in the art to alter the teachings of Koniger to include the teachings of Schoepfel, since it is well known in the art that GHX series protective sheets are useable as protective films and are among those films that one having the ordinary skill in the art would look to in finding the most effective protective sheet.

(07/10/2010 Office Action page 11 para. 3, to page 11, para. 1.)

However, Schoepfel does not correct any of the deficiencies noted above with respect to Koniger. Schoepfel was cited in the rejection for disclosing that GH-X series releasable protective sheets are known in the art. The presently claimed molding process is not remotely disclosed by Schoepfel. The fact that the a GH-X series sheet can be

used as a protective sheet in general irrespective of the process, for radically different uses, having no apparent relation to high gloss or automobiles, falls far short of the present invention. Schoeppel could just as well, with a very high probability, teach a different sheet used in a different process, the only similarity being the use of the GH-X in a series of trademarked protective sheets. This is remote from satisfying the requirements of 35 USC 103.

Regarding the non-obvious selection of the protective sheet used in the process of claim 1, the skilled person in the art is aware that polymers encompass a vast array of chemical and physical property possibilities. Polymers that differ in copolymer composition, ratio of comonomers, average molecular weight, molecular weight distribution, glass transition temperature, degree of crystallinity, degree of crosslinking, and type and number of polymer additives present are possible and are well known in the art. These factors will affect storage modulus, elongation at break, and transparency of films made from polyethylene and related polymers. Those of skill in the art thus readily appreciate that the properties required in Applicants' claim 1 are not present in all polymer sheets used for a protective purpose in various contexts. In fact, the non-obviousness of the present selection is underscored by the Office Action, which stated, "[I]t is well known that there are endless numbers of materials which are polyolefin based with infinite combinations of physical characteristics." (7/10/2009 Office Action page 6, lines 1-2). In fact, there are a wide variety of protective films that can be obtained for a wide variety of processes and products for various purposes.

The disclosure of the protective layer of Koniger and Schoeppel is at best a broad invitation to investigate films made of ethylene or polyethylene terephthalate. Yet, what would be investigated? According to Koniger, the films are merely used to protect the coatings (B), something achievable with many different and diverse coatings, even polyterephthalate films. In contrast, Applicants have found a specific type of protective film that, in a specific process, produces results in terms of gloss and other desired qualities, which protective film and results are not remotely taught by Koniger. For example, polyethylene or polyethylene terephthalate films can have a surface roughness outside of the claimed range, but the applicants have found that roughness as determined

by AFM that corresponds to an Ra value over a 50 mm² sampling area of <30 nm is ideal for producing coatings (B) with the desired properties.

The present specification states: The polymer moldings (M/T/B) with the functional surfaces (O) have outstanding surface properties. Their functional surfaces (O) have outstanding leveling, outstanding distinctiveness of the reflected image (DOI), and very good gloss...This applied even in those cases where the product of step (I) has been stored for a relatively long time before step (II) is carried out....Since they [the polymer moldings (M/T/B)] have what is termed automotive quality...they possess in particular outstanding suitability as exterior mounted components for automobile bodies, especially for top class automobile bodies.” [Page 18, lines 14-21, and page 19, lines 1-5.] As stated in the present specification, Applicants have compared the results of the claimed process to the moldings obtained using the processes of WO 00/63015 A1 [Koniger] and EP 0 352 298 B1, which in comparison were found to have inadequate gloss. Application as filed, page 2, lines 11-27.

Koniger cannot be used, under 35 U.S.C. §103, as an invitation to investigate in order to obtain Applicants' molding process, based on hindsight. MPEP §2112 IV states “[a]n invitation to investigate is not an inherent disclosure’ where a prior art reference ‘discloses no more than a broad genus of potential applications of its discoveries.’ *Metabolite Labs., Inc. v. Lab. Corp. of Am. Holdings*, 370 F.3d 1354, 1367, 71 USPQ2d 1081, 1091 (Fed. Cir. 2004) (explaining that ‘[a] prior art reference that discloses a genus still does not inherently disclose all species within that broad category’ but must be examined to see if a disclosure of the claimed species has been made or whether the prior art reference merely invites further experimentation to find the species

Although Koniger states that the protective layer of Koniger may be composed of polyethylene or polyterephthalate, there is no teaching of the protective sheet in terms of composition, structure, and key properties, such as could be selected from a wide variety of possible polymer films. For example, the use of fillers or other additives could significantly affect the properties. Therefore, there is no basis for the allegation that the protective films of Koniger, which are not fully described, teach the chemical composition and structure of the specifically selected protective sheets of Applicants' claim 1.

Specifically, the outstanding properties obtained by the present process are nowhere taught or even sought by Koniger. Applicants have shown that the polymer moldings of Koniger do not possess the desired properties:

[T]he coating (B) being covered at least temporarily with a protective sheet (S) is known from [Koniger]...The process, however gives polymer moldings (M/T/B) having unsatisfactory surface properties. In particular the functional surfaces (O) have inadequate leveling, an inadequate distinctiveness of the reflected image (DOI) and/or inadequate gloss. This applies in particular to those cases where it was necessary to store the process of step (I) for a relatively long time....[Page 2, lines 11-21.]

Thus, the present invention solved the problem found in the prior art represented by Koniger. As stated in the specification, the invention was surprising and unforeseeable for the skilled worker in light of the prior art. (Page 5, lines 21-25.) Thus, the assertion by the Office that Koniger teaches the presently claimed invention is contrary to the facts, whereas ignoring the differences from the prior art incorrectly applies the law under 35 U.S.C. §103.

Thus, while the Office Action, by misinterpretation, incorrectly contends Applicants has admitted that Koniger teaches the present process steps, the Office Action has failed to give any weight to what Applicants admitted improvement over Koniger, which is plainly stated.

Specifically, the outstanding properties obtained by the present process are nowhere taught or even sought by Koniger. Applicants have shown that the polymer moldings of Koniger do not possess the desired properties:

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Thus, the present invention solved the problem found in the prior art represented by Koniger. As stated in the specification, the invention was surprising and unforeseeable for the skilled worker in light of the prior art. (Page 5, lines 21-25.) Thus,

the assertion by the Office that Koniger teaches the presently claimed invention is contrary to the facts, whereas ignoring the differences from the prior art incorrectly applies the law under 35 U.S.C. §103.

Thus, while the Office Action, by misinterpretation, incorrectly contends Applicants has admitted that Koniger teaches the present process steps, the Office Action has failed to give any weight to what Applicants admitted improvement over Koniger, which is plainly stated.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, the prior art reference (or references when combined) must teach or suggest all the claim limitations (*CFMT, Inc. v. Yieldup Intern. Corp.*, 349 F.3d 1333, 1342 (Fed. Cir. 2003); *In re Royka*, 490 F.2d 981, 985 (C.C.P.A. 1974)). Second, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings (*DyStar Textilfarben GmbH & Co. Duetschland KG v. C.H. Patrick Co.*, 464 R.3d 1356, 1360, 80, USPQ2d 1641, 1645 (Fed. Cir. 2006), (MPEP 2143 G). Third, there must be a reasonable expectation of success *In re Merck & Co., Inc.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986), (MPEP 2143.02).

Koniger does not teach all the essential elements of the process of independent claim 1. Specifically, Koniger does not teach that the protective layer has the specified storage modulus E', elongation at break, transmittance, nor that the protective sheet has, on one side thereof, the specified hardness and roughness. Second, as pointed out above, these physical property limitations for the protective sheet of claim 1 are not obvious. Third, the prior art does not teach the unexpected advantages of the present invention, as discussed above. Obviousness cannot be predicated on what is unknown. *In re Shetty*, 566 F.2d 81, 86, 195 U.S.P.Q. 753, 756-57 (C.C.P.A. 1977). Koniger merely teaches that the use of the protective sheet is to prevent unintended curing. (Col. 5, lines 33-38.) The protective film (S) disclosed in claim 1 of the present application is not capable of preventing unintended curing, since the protective films of claim 1 have a transmittance of >70% of UV radiation and visible light with a wavelength of from 230 to 600 nm for a film thickness of 50 mm. The skilled person in the art would recognize that such a protective film could allow sufficient UV and visible light to penetrate the film to cure

the coating. Fifth, Koniger teaches the use of the protective film in a different process, involving a different curing sequence.

The Supreme Court has recently reaffirmed the principle that “a patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the art”. *KSR Int’l. Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1741 (2007). Furthermore, while the KSR decision may have eliminated any rigid requirement for application of the teaching-suggestion-motivation test (TSM test), it did not disturb the longstanding principle that “a prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984).”

Therefore reconsideration and removal of the obviousness rejection of the claims over Koniger is respectfully requested.

4. Rejection of claims 9-11 and 22-25 under 35 U.S.C. 103(a) as being unpatentable over Koniger et al. (U.S. Patent No. WIPO International Publication WO 00/63015, made of record by the applicant, whose English equivalent is Koniger et al. (USP No. 6,777,089 B1) in view of APA (Applicant’s Admitted Prior Art) in further view of Schoepel (U.S. pre-grant publication 2004/0042379 A1) and in further view of Otaki et al. (U.S. Patent No. 6,509,076).

Koniger and Schoepel were discussed above. The asserted APA is denied, as discussed above. Schoepel is directed to an optical storage medium from which information can be read out and/or into which information can be recorded with a light beam. Abstract. The optical storage film is characterized by an over film exhibiting a vertical birefringence of less than 0.0001 at 20°C at the wavelength of the light beam. Schoepel, col. 11, claim 1.

The other secondary reference, to Otaki, generally discloses a pressure-sensitive adhesive for a pressure-sensitive adhesive layer in a volume hologram laminate which, when kept in the pressed state, for example, during storage, is less likely to cause spotty hologram defects in the volume hologram layer. The volume hologram laminate comprises a substrate, and stacked on the substrate in the following order, a first pressure-sensitive adhesive layer, a volume hologram layer, a second pressure-sensitive adhesive

layer, and a surface protective film. The second pressure-sensitive adhesive layer comprises an acrylic copolymer resin, composed mainly of an alkyl acrylate and a crosslinking agent, and has a dynamic storage modulus of not less than 2.5×10^5 Pa and a loss tangent ($\tan \delta$) of not more than 0.15. The Office Action alleges:

In claim 9, Koniger does not explicitly teach wherein the protective sheet (S) is constructed from a plurality of layers...However, Otaki discloses wherein the protective sheet (S) is constructed from a plurality of layers. (See column 10, line 36, to column 11, line 30, disclosing example 1 which discloses that the protective film (part number 6 in figure 1) has multiple layers. More specifically the protective film has an adhesive layer and a release layer (antiblocking layer).)

Koniger and Otaki are analogous art because they solve the similar problem of protecting a laminate sheet from post processing harm by adding a protective sheet to the outer layer. At the time of invention, it would have been obvious to the applicant being one of ordinary skill in the art, having the teachings of Koniger and Otaki before him or her, to modify the teachings of Koniger to include the teachings of Otaki for the benefit of creating a protective layer that is capable of bonding to the outer layer of the laminate sheet any preventing any unwanted curing/damage on the outer surface. (See Column 1, lines 25-30, disclosing that the multi layer laminate (hologram) has many defects when they are stacked or pressed on top of one another during storage.) The motivation for doing so would have been to delay the defects by adding a protective layer that comes off prior to use. Therefore, it would have been obvious to combine Koniger and Otaki to make a polymer molding whose final product can be delayed until after the protective film was taken off because one would have been motivated to solve the problem of eliminating defects in the resultant product.

(07/10/2010 Office Action page 17, paragraph 2, to page 18, para. 1.)

Applicants appreciate the detailed basis of rejection of claim 9, but respectfully traverses this rejection as well. In the "Background Art" section (col. 1, ll. 14-18), Otaki states that the prior art holograms laminates also have a "transparent protective film" (line 19). Yet the prior art volume hologram laminates still "pose a problem of the occurrence of spotty hologram defects" (col. 1, ll. 26-30). Thus, as stated in the "Disclosure of the Invention" section, Otaki teaches that "it is an object of the present invention to provide a pressure-sensitive adhesive for a pressure-sensitive adhesive layer in a volume hologram laminate which . . . is less likely to cause spotty hologram defects in the volume hologram layer" (col. 1, ll. 41-48). Thus the teaching of Otaki is an adhesive of specific composition and elastic properties which solves the problem of

spotty defects. The motivation of Otaki is to modify the elastic properties of an adhesive layer, if present, rather than to provide a protective sheet layer as presently claimed for the specified process to make the specified product, which product is not a hologram laminate. Thus, Otaki cannot reasonably correct the deficiencies of Koniger discussed above.

Regarding claims 10 and 11, the Office Action alleges that Otaki discloses that the protective film has a core layer, an adhesive layer, and a release layer, and the protective film can comprises polyethylene among other polymers. The Office Action alleges that Otaki provides motivation to use a protective layer in order to eliminate defects. As stated above, it is the teaching of Otaki that an adhesive of specific composition and elastic properties solves the problem of spotty defects, not the presence of a specific protective film as presently claimed for use in a specific process to make a specific type of polymer molding, as presently claimed.

Taken as a whole, it is respectfully submitted that Otaki fails to correct the deficiencies of Koniger or to provide the requisite motivation to modify Koniger to obtain the presently claimed process, even when optionally taken in view of Schoeppel. In addition, claims 9-10 (directly) and claim 11 (indirectly) depend from claim 1, and incorporate all the limitations of claim 1, which is not obvious over Koniger as discussed above. Reconsideration and removal of the obviousness rejection of claims 9-11 is therefore respectfully requested.

Response to Arguments

The Office Action, in the "Response to Arguments" section, state that Applicants arguments are not persuasive for the following reasons:

Examiner Response 1a: The Office Action states, "Applicant is admitting that claim 1 (specifically the properties of the sheet) was achieved through substantial experimentation. This is evidence of undue experimentation which would make this case non-enabling." (07/10/2010 Office Action at page 29, para. 1.)

Applicants' Response: The Office Action has confused the selection of the specified properties of the protective sheet with making a protecting sheet having the specified properties. In other words, Office Action has confused invention with enablement once the invention has been made. The experimentation involved in the invention is not the same as the experimentation involved in reproducing the invention based on Applicants' extensive disclosure of the invention.

Examiner Response 1b: The Office Action states, "In this case, applicant has not: "(1) provided an example of a composition for the protective sheet which would have the claimed properties; (2) provided an example of the method needed to attain the claimed properties, (3) provided a reasonable amount of guidance with respect to the direction in which the experimentation should proceed." (07/10/2010 Office Action page 33, last paragraph.)

Applicants' Response: As discussed above, complete and detailed working examples are not required according under the US patent laws. Applicants' claims are narrowly drawn to a particular composition and properties of a protective sheet used in the claimed process. The properties involve basically standard kinds of properties, modulus and elongation to break. The use of such a protective sheet, as only one, but important, part of the invention as a whole, can be obtained from various commercial vendors, according to standard practice. The Examiner has provided no evidence to the contrary. The inventive aspect involves the selection of the specified protective sheet and its use in the multi-step process, not the manufacture of polypropylene sheets. Applicants are not claiming the protective sheet per se, but the selected use of the specified sheet in a specified process to obtain the indicated improvement in gloss for use in automobile parts and the like.

Examiner Response 1c: “The relationship between a trademark and the product it identifies is sometimes indefinite, uncertain, and arbitrary.” (07/10/2010 Office Action at page 32, para. 3.)

As stated above, there are no trademarks in the present claims, and Applicants make no reliance on the trademark GH-X 527 for a disclosure of physical or chemical characteristics of what is claimed. The trademark serves its known purpose, identifying a possible optional source of a suitable material for use in the claimed invention. It shows that, in fact, the protective sheet, has been manufactured and may be commercially available. While Applicants can agree that a generic description of the trademark would have been desirable, it is too late to do anything about it at the present time and the patent laws do not require perfectly worded disclosures, which is not to be confused with enablement as reasonably construed.

Examiner Response 2a: The Office Action states, “The high gloss of the M/T/B film is not derived from the addition of the inventive protective sheet...it is derived by the ability of the protective sheet to protect the high gloss finish of the M/T/B film.” (07/10/2010 Office Action page 34, last paragraph.)

Applicants' response: This statement is factually incorrect. The improvement in gloss, obtained by the present invention, which is due to the selection of the specified protective sheet in the specified process, is not merely a matter of the protective function of the protective sheet, but a matter of interaction between the process steps and the protective film, including the interaction of the specified protective sheet with the underlying coatings and the deformation, molding, and curing steps.

Examiner Response 2b: The Office Action states that “before the molding operation the polymer molding (MTB) must have been uncured, partly cured, or fully cured.” (07/10/2010 Office Action page 35, para. 2.)

Applicants' Response: As discussed above, neither Koniger or APA (which is an incorrectly asserted admission regarding Koniger) discloses curing of film (B.2) after step (I) and following deformation but before step (II). Furthermore, Koniger nowhere ties that curing to when the protective sheet is applied or removed, because (in fact) Koniger's disclosure is inconsistent with Applicants' claimed process steps in terms of the relationship of the curing and the application of the protective sheet.

Examiner Response: The Office Action states, "The GH-X series brand protective films are already used in the art and taught by Schoeppel... Therefore, one having ordinary skill in the art would have sought to try a similar sheet as a protective sheet." (07/10/2010 Office Action page 36, para. 2.)

Applicants' Response: The Office Action is apparently making an "obvious to try" argument while at the same time conceding that the possibilities are virtually endless in terms of myriad compositions and properties of a protective sheet. Furthermore, Schoeppel provides no selection in terms of composition, properties, or application. Hence, Schoeppel most likely teaches away from the present invention, in view of teaching the use of a different protective sheet for a different process.

Applicants have defined the invention, in the present claim, in terms of both particular types of polymers and a specified set of standard properties. The fact that Applicants' have obtained a material from a commercial source or have additionally identified the material by trademark, in an example, is standard practice in patent application and should not be exaggerated. In fact, the trademarked product used in the examples is the same material as described in the present specification in terms of preferred polymeric composition. Furthermore, this selection of the materials and properties for use in the presently claimed process is indeed nonobvious, given the myriad possible films available or conceivable. Once those materials and properties are selected, however, then obtaining the specified film is well within standard practice by one of ordinary skill in the art.

In conclusion, Applicants thank the Examiner for a thorough and detailed prosecution. Having received the benefit of such examination, Applicants have now more clearly defined the claimed invention and have more fully explained how the present invention is distinguishable from the prior art. Accordingly, Applicants respectfully submit that the Application and pending claims are patentable, as explained in the foregoing remarks. As always, the Examiner is encouraged to contact the Undersigned by telephone if direct conversation would be helpful.

CONCLUSION

Applicants respectfully submit that the Application and pending claims are patentable in view of the foregoing remarks. A Notice of Allowance is respectfully requested. As always, the Examiner is encouraged to contact the Undersigned by telephone if direct conversation would be helpful.

Respectfully Submitted,

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